

ADDITIONAL NOTES ON THE ERIOCAULACEAE. XXXVI

Harold N. Moldenke

ERIOCAULACEAE Lindl.

Additional & emended bibliography: L., Gen. Pl., ed. 2, 35 & [536] (1742), ed. 3 ["2"], 29 & [421] (1743), ed. 4, 29 & [450] (1752), and ed. 6, 40 & [589] and Ord. Nat. P.p.5.I.Bur. 1764; J. Hill, Herb. Brit. 1: 96\*-99\*, pl. 66 [some copies]. 1769; Hope, Phil. Trans. Roy. Soc. Lond. 59: 241-246, pl. 12. 1770; Druce, Brit. Pl. List, ed. 2, 118. 1928; Druce, Comital Fl. 320. 1932; Schipp, 1933-34 Pricelist 57. 1934; Hausman, Begin. Guide Wild Fls. 4. 1948; Ohwi, Journ. Jap. Bot. 33: 211. 1958; Eden, McGill Univ. Savanna Res. Ser. 1: 135-137 & 144. 1964; Majumdar, Bull. Bot. Soc. Bengal 19: 15. 1965; Brummitt, Ind. Europ. Tax. Lit. 1965: 80. 1966; Datta & Majumdar, Bull. Bot. Soc. Bengal 20: 18 & 38-39. 1966; Rzedowski & McVaugh, Contrib. Univ. Mich. Herb. 9: 76 & 89. 1966; Moldenke, Biol. Abstr. 47: 754 (1966) and 48: xxii, 10097, & 10099. 1967; J. & A. Raynal, Adansonia, nouv. sér., 7: 302 & 329. 1967; Adam, Adansonia, nouv. sér., 8: 445. 1968; Tiwari, Indian Forest. 94: 579. 1968; Dandy, Watsonia 7: 168-174, fig. 1-5. 1969; Duke, Ann. Mo. Bot. Gard. 56: 128 & 129. 1969; Santapau & Shah, Journ. Bombay Nat. Hist. Soc. 66: 440. 1969; Moldenke, Biol. Abstr. 51: 5587, 9023, 9629, & 11903. 1970; Anon., Biol. Abstr. 51 (10): B.A.S.I.C. S.24, S.32, S.44, S.70, & S.71 (1970), 51 (16): B.A.S.I.C. S.25, S.46, S.74, & S.126 (1970), 51 (17): B.A.S.I.C. S.72 (1970), 51 (19): B.A.S.I.C. S.75 (1970), and 51 (21): B.A.S.I.C. S.25, S.75, & S.122. 1970; Moldenke, Phytologia 20: 339-368 & 404-425. 1970; Lasser, Act. Bot. Venez. 4: 35. 1970; Ehrendorfer, Taxon 19: 600. 1970; Anon., Assoc. Etud. Tax. Fl. Afr. Trop. Index 1969: 26. 1970; Rogerson, Rickett, & Becker, Bull. Torrey Bot. Club 97: 238. 1970; Amaratunga, Phytologia 20: 463. 1970; D. P. Young, Biol. Abstr. 51: 10775. 1970; Moldenke in Correll & Johnston, Man. Vasc. Pl. Tex. [Lundell, Contrib. Tex. Res. Found. Bot. 6:] 20, 352-354, 1806, 1824, 1838, & 1856. 1970; Oberwinkler, Pterid. & Sperm. Venez. 7 & 9. 1970; Lowden, Taxon 19: 845. 1970; Angely, Fl. Anal. Fitogeogr. Est. S. Paulo 2: xxiii, xxvii, & xxxv. 1970; Adam, Bull. Inst. Fond. Afr. Noire A.32: 1003. 1970; Moldenke, Phytologia 20: 504-510. 1971; Moldenke, Biol. Abstr. 52: 132, 714, 719, & 1918. 1971; Anon., Biol. Abstr. 52 (1): B.A.S.I.C. S.147 & S.175 (1971), 52 (2): B.A.S.I.C. S.80, S.133, & S.251 (1971), 52 (3): S.78 & S.129 (1971), and 52 (4): B.A.S.I.C. S.26, S.35, S.77, & S.165. 1971.

BLASTOCaulon Ruhl.

Additional bibliography: Moldenke, Phytologia 20: 340, 422, & 423. 1970; Moldenke, Biol. Abstr. 51: 5587, 9023, & 11903. 1970; Anon., Biol. Abstr. 51 (10): B.A.S.I.C. S.24, S.32, & S.44 (1970), 51 (16): B.A.S.I.C. S.25, S.46, & S.74 (1970), 51 (21): B.A.S.I.C. S.25 (1970), 52 (2): B.A.S.I.C. S.27 & S.37 (1971), and 52 (4): B.A.S.I.C. S.26,

S.35, & S.77. 1971; Moldenke, Phytologia 20: 504. 1971; Moldenke, Biol. Abstr. 52: 719 & 1918. 1971.

**BLASTOCAULON RUPESTRE** (Gardn.) Ruhl.

Additional bibliography: Anon., Biol. Abstr. 51 (16): B.A.S.I. C. S.25. 1970; Moldenke, Phytologia 20: 340. 1970; Moldenke, Biol. Abstr. 51: 9023. 1970.

Mexia describes this plant as abundant, forming colonies, with white flowers in May.

Additional citations: BRAZIL: Minas Gerais: Mexia 5779 (Go).

**CARPTOTEPALA** Moldenke

Additional bibliography: Anon., Biol. Abstr. 51 (10): B.A.S.I. C. S.24, S.32, & S.44. 1970; Moldenke, Biol. Abstr. 51: 5587. 1970; Oberwinkler, Pterid. & Sperm. Venez. 9 & 52. 1970; Moldenke, Phytologia 20: 340-341 (1970) and 20: 505. 1971; Moldenke, Biol. Abstr. 52: 719 & 1918. 1971; Anon., Biol. Abstr. 52 (2): B.A.S.I. S.25, S.37, S.50, & S.80 (1971) and 52 (4): B.A.S.I.C. S.26, S.35, S.77, & S.165. 1971.

**CARPTOTEPALA JENMANI** (Gleason) Moldenke

Additional bibliography: Moldenke, Phytologia 20: 341. 1970; Oberwinkler, Pterid. & Sperm. Venez. 9 & 52. 1970.

**COMANTHERA** L. B. Sm.

Additional bibliography: Anon., Biol. Abstr. 51 (10): B.A.S.I. C. S.24, S.32, & S.44 (1970) and 51 (16): B.A.S.I.C. S.46. 1970; Moldenke, Biol. Abstr. 51: 5587. 1970; Moldenke, Phytologia 20: 246 (1970) and 20: 505. 1971; Moldenke, Biol. Abstr. 52: 719. 1971; Anon., Biol. Abstr. 52 (2): B.A.S.I.C. S.27, S.37, S.50, S.80, & S.145. 1971.

**ERIOCAULON** Gron.

Additional synonymy: Eriocaulan Moldenke, Biol. Abstr. 51: 5587, sphalm. 1970. Eriocaulon (Vell.) L. B. Sm., in herb.

Additional & emended bibliography: L., Gen. Pl., ed. 2, 35 & [536] (1742), ed. 3 ["2"], 29 & [421] (1743), ed. 4, 29 & [450] (1752), & ed. 6, 40 & [589] and Ord. Nat. P.p.5.I.Bur. 1764; J. Hill, Herb. Brit. 1: 96\*-99\*, pl. 66 [some copies]. 1769; Hope, Phil. Trans. Roy. Soc. Lond. 59: 241-246. 1770; Druce, Brit. Pl. List, ed. 2, 118. 1928; Druce, Comital Fl. 320. 1932; Schipp, 1933-34 Pricelist 57. 1934; Hausman, Begin. Guide Wild Fls. 4. 1948; Ohwi, Journ. Jap. Bot. 33: 211. 1958; Eden, McGill Univ. Savanna Res. Ser. 1: 144. 1964; Majumdar, Bull. Bot. Soc. Bengal 19: 15. 1965; Rzedowski & McVaugh, Contrib. Univ. Mich. Herb. 9: 76 & 89. 1966; J. & A. Raynal, Adansonia, nouv. sér., 7: 302 & 329. 1967; Tiwari, Indian Forest. 94: 579. 1968; Dandy, Watsonia 7: 168-174, fig. 1-5. 1969; Santapau & Shah, Journ. Bombay Nat. Hist. Soc. 66: 440. 1969; Moldenke, Biol. Abstr. 51: 5587, 9023, 9629, & 11903. 1970; Moldenke in Correll & Johnston, Man. Vasc. Pl. Tex. [Lundell, Contrib. Tex. Res. Found. Bot. 6:] 353-354,

1824, & 1856. 1970; Oberwinkler, Pterid. & Sperm. Venez. 7, 9, & 52. 1970; Moldenke, Phytologia 20: 341-351, 356, 357, 364, 404-418, 420, & 422-425. 1970; Lowden, Taxon 19: 836. 1970; Angely, Fl. Anal. Fitogeogr. Est. S. Paulo 2: xxodi. 1970; D. P. Young, Biol. Abstr. 51: 10775. 1970; Anon., Biol. Abstr. 51 (10): B.A.S.I.C. S.70 & S.71 (1970), 51 (16): B.A.S.I.C. S.25, S.74, & S.126 (1970), 51 (17): B.A.S.I.C. S.72 (1970), 51 (19): B.A.S.I.C. S.75 (1970), 51 (21): B.A.S.I.C. S.75 (1970), 52 (2): B.A.S.I.C. S.37, S.50, S.80, & S.145 (1971), and 52 (4): B.A.S.I.C. S.26, S.35, S.77, & S.165. 1971; Moldenke, Biol. Anstr. 52: 719 & 1918. 1971; Moldenke, Phytologia 20: 506 & 508. 1971.

The Degelius s.n. [4/VI/1958], distributed as Eriocaulon sp., is actually Paepalanthus lamarckii Kunth.

#### ERIOCAULON AQUATICUM (J. Hill) Druce

Emended synonymy: Eriocaulon septangulare L. ex Mart., Nov. Act. Physico-med. Acad. Caes. Leopold.-Carol. Nat. Cur. 17 (1): 11. 1835.

Additional & emended bibliography: J. Hill, Herb. Brit. 1: 96\*-99\*, pl. 66 [some copies]. 1769; Hope, Phil. Trans. Roy. Soc. Lond. 59: 241-246, pl. 12. 1770; Mart., Nov. Act. Physico-med. Acad. Caes. Leopold.-Carol. Nat. Cur. 17 (1): 11, 22, 38, & 58, pl. 2, fig. 2. 1835; Körn. in Mart., Fl. Bras. 3 (1): 280, 489, & 502-505. 1893; Druce, Brit. Pl. List, ed. 2, 118. 1928; Solomon, Journ. Indian Bot. Soc. 10: 139-144. 1931; Druce, Comital Fl. 320. 1932; R. M. Adam, New Fl. & Silv. 6, no. 1. 1933; Muenscher, Aquat. Pl. U. S. 192-195 & 367, fig. 84 H-J & 85 A & B, map 208. 1944; Hare, Journ. Linn. Soc. Lond. Bot. 53: 422-448, fig. 6-40, pl. 22. 1950; Tomlinson, Journ. Linn. Soc. Lond. Bot. 59: 169 & 173. 1964; Tomlinson in C. R. Metcalfe, Anat. Monocot. 3: [146], 149, 154, 155, 159-163, 168-172, 175-177, 186, 189, 190, & 192, fig. 32 G-I & K, 35 J, & 36 L. 1969; Dandy, Watsonia 7: 168-174, fig. 1-5. 1969; R. G. West in Walker & West, Stud. Veg. Hist. Brit. Isles 9. 1970; Moldenke, Biol. Abstr. 51: 5587 & 9023. 1970; Moldenke, Phytologia 20: 19-20, 41, & 82. 1970; Mohlenbrock, Illust. Fl. Ill. Flow. Pl. Flow. Rush 249. 1970; D. P. Young, Biol. Abstr. 51: 10775. 1970; Anon., Biol. Abstr. 51 (19): B.A.S.I.C. S.75. 1970; Moldenke in Correll & Johnston, Man. Vasc. Pl. Tex. [Lundell, Contrib. Tex. Res. Found. Bot. 6:] 353, 354, & 1824. 1970.

Additional & emended illustrations: Mart., Nov. Act. Physico-med. Acad. Caes. Leopold.-Carol. Nat. Cur. 17 (1): pl. 2, fig. 2. 1835; Hare, Journ. Linn. Soc. Lond. Bot. 53: [429, 432, 435], 437, 440, & 442, fig. 6-40, pl. 22. 1950; Tomlinson in C. R. Metcalfe, Anat. Monocot. 3: 154, 168, & 176, fig. 32 G-I & K, 35 J, & 36 L. 1969; Dandy, Watsonia 7: 170, fig. 1. 1969.

The Martius (1835) reference cited above is often cited as "1833", the date of its submission for publication, but Dr. J. H. Barnhart says "I can find no evidence that this paper was published until 1835".

This species has been regarded as properly named E. septangulare With. up to the present in my publications. I have referred from time to time in the past to the name Cespa aquatica J. Hill,

but was unable to find incontrovertible evidence that it had been published validly under the present rules of botanic nomenclature. Now, however, the matter has been investigated thoroughly by Dandy (1969) and his extremely important discussion of the matter is reproduced here for the benefit of readers who may not have the journal in which he published his results available in their library:

"In 1909 G. C. Druse drew attention to the existence in his copy of Hill's Herbarium Britannicum (vol. 1: 1769) of an additional plate 66 illustrating, with dissections, a genus Cespa with the single species C. aquatica ('Water Turffwort'). The species depicted was Eriocaulon septangulare, described under that name by Withering in 1776, and so Druse on grounds of priority published the new combination E. aquaticum (Hill) Druse. For some reason Druse in his later works did not persist in the use of the name E. aquaticum; thus in his British plant list ed. 2, 118 (1928), he retained the name E. septangulare (with E. aquaticum cited as a synonym), and in his Comital Flora, 320 (1932), he used the name E. septangulare without mention of E. aquaticum. Possibly he now thought his combination E. aquaticum to be invalidated by E. aquaticum Sagot ['Mss. in Herb. Sagot.] ex Koern. in Mart., Fl. Brasil. 3 (1), 489 (1863); but this name was published only as a synonym of E. melanocephalum Kunth and so cannot invalidate E. aquaticum (Hill) Druse.

"The additional plate 66 present in Druse's copy of the Herbarium Britannicum does not appear in all copies of the work; but at the British Museum, Bloomsbury, and at the Linnean Society of London there are copies which contain not only this additional plate but also four additional pages of text (numbered 96\*-99\*) in which Cespa aquatica is described at length. These extra pages and plate.....were presumably not issued soon enough for inclusion in all copies of the Herbarium Britannicum. According to Hill's statement on p. 96\* the plant concerned had been collected in the previous year ('mense Septemb. anni elapsi') on the island of Skye by James Robertson, and had been communicated to Hill, with an illustration and description, by John Hope of Edinburgh. Hope himself published an account of it in Phil. Trans. Lond. 59, 241-246, t. 12 (1770), in which he stated that it had been found by Robertson in September 1768. Thus Hill's 'anni elapsi' was 1768, so that his additional pages and plate were issued, or at least printed, in 1769. Hill in any case died in 1775, before Withering's publication of E. septangulare in 1776.

"Hope correctly placed the plant in Eriocaulon, but misidentified it with E. decangulare L., a species confined to North America. Hill, on the other hand, treated it as forming a new genus, Cespa, which, according to his footnote on p. 98\*, he considered to differ from Eriocaulon in having the corolla 'depetala', Eriocaulon being 'tripetalum'. Hope mentioned the plant's vegetative resemblance to 'Calamaria Dill. Musc. Tab. 80' (Isoetes L.) in

which, however, a flowering stem was unknown; Hill's footnote on p. 96\* makes the same point."

All the discussion, therefore, given by me in these notes previous to the present date under E. septangulare, including bibliography, list of illustrations, and citations, should be transferred to E. aquaticum.

Additional citations: EIRE: Galway Co.: Anderberg s.n. [1/18/1933] (Go).

#### ERIOCAULON AQUATILE Körn.

Additional bibliography: Moldenke, Phytologia 20: 343. 1970.

Irwin and Soderstrom describe this plant as an "aquatic herb, in rushing water; heads gray, erect, emerging from water, infrequent", and found it at altitudes of 700--1000 meters.

Additional citations: BRAZIL: Distrito Federal: Irwin & Soderstrom 5822 (N).

#### ERIOCAULON BIFISTULOSUM Van Heurck & Muell.-Arg.

Additional bibliography: J. & A. Raynal, Adansonia, nouv. sér., 7: 302. 1967; Moldenke, Phytologia 20: 344. 1970.

#### ERIOCAULON BILOBATUM Morong

Additional bibliography: Moldenke, Phytologia 20: 7. 1970.

Breedlove found this plant growing in flat areas with forests of Pinus, Quercus, and Arbutus and many small ponds, at 7500 feet altitude, flowering and fruiting in November.

Additional citations: MEXICO: Durango: Breedlove 18814 (Pf).

#### ERIOCAULON BONGENSE Engl. & Ruhl.

Additional & emended bibliography: J. & A. Raynal, Adansonia, nouv. sér., 7: 302 & 329. 1967; Moldenke, Phytologia 19: 326. 1970.

#### ERIOCAULON CAPITULATUM Moldenke

Additional bibliography: Moldenke, Phytologia 20: 346. 1970.

The species has been found growing on steep moist slopes with Pinus, Quercus, and Arbutus, at 7900 feet altitude, flowering and fruiting in November.

Additional citations: MEXICO: Durango: Breedlove 18780 (Z).

#### ERIOCAULON CINEREUM R. Br.

Additional bibliography: Majumdar, Bull. Bot. Soc. Bengal 19: 15. 1965; Moldenke, Phytologia 20: 346--347. 1970.

Rogerson found this plant growing in moist rice-paddies, flowering and fruiting in October.

Additional citations: PHILIPPINE ISLANDS: Luzon: Rogerson 1099 (N).

#### ERIOCAULON COLLINUM Hook. f.

Additional bibliography: Moldenke, Phytologia 20: 347. 1970.

Koyama & Herat found this plant growing on the wet margins of narrow streams in the bottom of swampy depressions in black Pat-

ana grasslands in Ceylon, in association with Fimbristylis monticola and Carex arnottiana, at 7200 feet altitude, flowering and fruiting in May.

Additional citations: CEYLON: Koyama & Herat 13641 (N).

ERIOCAULON COMPRESSUM Lam.

Additional bibliography: Moldenke in Correll & Johnston, Man. Vasc. Pl. Tex. [Contrib. Tex. Res. Found. Bot. 6:] 353, 354, & 1824. 1970; Moldenke, Phytologia 20: 347. 1970.

ERIOCAULON CRISTATUM Mart.

Additional bibliography: Moldenke, Phytologia 20: 348. 1970.

The species has been found growing in bogs, flowering and fruiting in July.

Additional citations: INDIA: Khasi States: Kingdon-Ward 18695 (N).

ERIOCAULON DALZELLII Körn.

Additional bibliography: Moldenke, Phytologia 20: 348. 1970.

Koyama reports this species as occasional in wet depressions in black Patana grasslands, in association with Gentianella, at 7000 feet altitude, flowering and fruiting in March.

Additional citations: CEYLON: Koyama 13516 (N).

ERIOCAULON DECANGULARE L.

Additional bibliography: Hausman, Begin. Guide Wild Fls. 4. 1948; Dandy, Watsonia 7: 169. 1969; Moldenke, Phytologia 20: 348-349, 404, & 417. 1970; Anon., Biol. Abstr. 51 (16): B.A.S.I.C. S.74. 1970; Moldenke in Correll & Johnston, Man. Vasc. Pl. Tex. [Contrib. Tex. Res. Found. Bot. 6:] 353 & 1824. 1970.

Henderson reports finding this plant growing in swampy roadsides.

Additional citations: FLORIDA: Wakulla Co.: N. C. Henderson 64-245 (Go).

ERIOCAULON DECANGULARE f. PARVICEPS Moldenke

Additional bibliography: Moldenke, Phytologia 20: 404. 1970; Anon., Biol. Abstr. 51 (16): B.A.S.I.C. S.74. 1970.

ERIOCAULON DIANAE Fyson

Additional bibliography: Santapau & Shah, Journ. Bombay Nat. Hist. Soc. 66: 440. 1969; Moldenke, Phytologia 20: 405. 1970.

Santapau & Shah (1969) record this species from Salsette Island, India.

ERIOCAULON DIANAE var. LONGIBRACTEATUM Fyson

Additional bibliography: Santapau & Shah, Journ. Bombay Nat. Hist. Soc. 66: 440. 1969; Moldenke, Phytologia 20: 405. 1970.

Santapau & Shah (1969) record this variety from Salsette Island, India.

**ERIOCAULON ELENORAE** Fyson

Additional bibliography: Santapau & Shah, Journ. Bombay Nat. Hist. Soc. 66: 440. 1969; Moldenke, Phytologia 19: 335—336. 1970. Santapau & Shah (1969) record this species from Salsette Island, India.

**ERIOCAULON GIBBOSUM** Körn.

Additional bibliography: Moldenke, Phytologia 20: 407—408. 1970.

Irwin and his associates describe the flowering-heads of this plant as "gray" and encountered the plant growing in periodically flooded campos at 400 meters altitude.

Additional citations: BRAZIL: Mato Grosso: Irwin, Souza, Grear, & Reis dos Santos 16981 (Rf).

**ERIOCAULON GIBBOSUM** var. **LONGIFOLIUM** Körn.

Additional bibliography: Moldenke, Phytologia 20: 408. 1970.

Irwin & Soderstrom describe the flowering-heads of this plant as "grayish" and found it to be common in muddy soil of periodically flooded meadows, flowering and fruiting in September.

Additional citations: BRAZIL: Distrito Federal: Irwin & Soderstrom 6134 (N).

**ERIOCAULON HERZOGII** Moldenke

Additional bibliography: Moldenke, Phytologia 20: 410. 1970; Anon., Biol. Abstr. 51 (10): B.A.S.I.C. S.24 & S.71. 1970; Moldenke, Biol. Abstr. 51: 5587. 1970.

**ERIOCAULON HEUDELOTII** N. E. Br.

Additional bibliography: J. & A. Raynal, Adansonia, nouv. sér., 7: 302. 1967; Moldenke, Phytologia 20: 410. 1970.

**ERIOCAULON HOOKERIANUM** Stapf

Additional bibliography: Moldenke, Phytologia 20: 411. 1970.

The Clemenses found this species growing by pools in the open.

Additional citations: GREATER SUNDA ISLANDS: Sarawak: Clemens & Clemens 20094 (N).

**ERIOCAULON HUMBOLDTII** Kunth

Additional bibliography: Moldenke, Phytologia 20: 411. 1970; Oberwinkler, Pterid. & Sperm. Venez. 9 & 52. 1970.

Irwin and his associates describe the inflorescences of this plant as attaining a height of 1 meter, the heads being white, and the plant growing in wet campos at 850 meters altitude, flowering and fruiting in April.

Additional citations: BRAZIL: Bahia: Irwin, Grear, Souza, & Reis dos Santos 14742 (Rf).

**ERIOCAULON INFIRUM** Steud.

Additional bibliography: Moldenke, Phytologia 20: 412. 1970; Anon., Biol. Abstr. 51 (16): B.A.S.I.C. S.74. 1970.

## ERIOCAULON INFIRMUM var. KURZII (Fyson) Moldenke

Additional bibliography: Moldenke, Phytologia 20: 412. 1970; Anon., Biol. Abstr. 51 (16): B.A.S.I.C., S.74. 1970.

## ERIOCAULON KÖRNICKIANUM Van Heurck &amp; Muell.-Arg.

Additional bibliography: Moldenke, Phytologia 20: 413. 1970; Moldenke in Correll & Johnston, Man. Vasc. Pl. Tex. [Contrib. Tex. Res. Found. Bot. 6:] 353 & 1824. 1970.

## ERIOCAULON KUNTHII Körn.

Additional bibliography: Moldenke, Phytologia 20: 413. 1970.

Additional citations: BRAZIL: Paraná: Hatschbach 22965 (N).

## ERIOCAULON LASIOLEPIS Ruhl.

Emended synonymy: Lasiolepis brevifolia Böck., Flora 56: 90--91. 1873.

Additional & emended bibliography: Böck., Flora 56: 90--91. 1873; Moldenke, Phytologia 18: 258. 1969.

This species is said to be endemic to Malacca. Jackson (1894) credits it to "Ind. or."

## ERIOCAULON LATIFOLIUM J. Sm.

Additional bibliography: Hocking, Excerpt. Bot. A.6: 455. 1963; Tomlinson in C. R. Metcalfe, Anat. Monocot. 3: 161, 172, & 189. 1969; Moldenke, Phytologia 20: 13, 25, 29, 268, & 281. 1970.

Graca Espírito Santo describes this plant as "erva aquática anual, tufosa no leito pedregoso e cascalhento das linhas de água corrente", says that it has white flowers, reports the common names "órfi" and "futafula", and collected it in anthesis in January.

The synonymous designation, E. rivulare G. Don, was based on a G. Don s.n. collection from a rivulet near Freetown, Sierra Leone, deposited in the herbarium of the Royal Horticultural Society in London.

Additional citations: REPUBLIC OF GUINEA: Graca Espírito Santo 2864 (N).

## ERIOCAULON LAXIFOLIUM Körn.

Additional & emended bibliography: Körn., Linnaea 27: 600. 1856; Körn. in Mart., Fl. Bras. 3 (1): 290, 494, & 506. 1863; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 1, 2: 402 (1894), pr. 2, 2: 402 (1946), and pr. 3, 2: 402. 1960; Moldenke, Phytologia 19: 73. 1969.

## ERIOCAULON LEUCOGENES Ridl.

Additional bibliography: Moldenke, Phytologia 19: 66 & 73--74. 1969.

Hoogland reports this species as "common in treefern grassland", describes the flower-heads as white, and found the plant in anthesis in July.

Additional citations: NEW GUINEA: Territory of New Guinea: Hoogland 9398 (N).

**ERIOCAULON LIGULATUM** (Vell.) L. B. Sm.

Additional & emended bibliography: Malme, Bih. Svensk. Vet. Akad. Handl. 27 (3), no. 11: 32. 1901; Rambo, Sellowia 7: 248 & 283. 1956; Moldenke, Phytologia 20: 13-14. 1970.

Additional citations: BRAZIL: Paraná: Hatschbach 22267 (N, Rf), 22557 (Ac).

**ERIOCAULON LINEARE** Small

Additional bibliography: Moldenke, Phytologia 20: 14 & 42. 1970.

Additional citations: FLORIDA: Leon Co.: N. C. Henderson 64-237 (Go).

**ERIOCAULON LINEARIFOLIUM** Körn.

Additional & emended bibliography: Körn., Linnaea 27: 601. 1856; Körn. in Mart., Fl. Bras. 3 (1): 293, 498, & 507. 1863; Moldenke, Phytologia 19: 342. 1970.

This plant has been found in flower and fruit in August.

Additional citations: BRAZIL: Mato Grosso: Hatschbach & Gimenes 24560 (Rf).

**ERIOCAULON LONGICUSPE** Hook. f.

Additional bibliography: Moldenke, Phytologia 19: 75 (1969) and 19: 481. 1970.

**ERIOCAULON LONGIPEDUNCULATUM** H. Lecomte

Additional bibliography: Moldenke, Phytologia 2: 374 (1947) and 19: 75 & 93. 1969; Tomlinson in C. R. Metcalfe, Anat. Monocot. 3: 171-173, 186, & 189. 1969; Moldenke, Phytologia 19: 417. 1970.

**ERIOCAULON LONGIROSTRUM** Alv. Silv. & Ruhl.

Additional bibliography: Moldenke, Phytologia 2: 494 (1948) and 18: 271. 1969.

**ERIOCAULON LUTCHUENSE** Koidz.

Additional bibliography: Koyama in Ohwi, Fl. Jap. 268. 1965; Moldenke, Phytologia 18: 271-272 (1969) and 19: 250. 1970.

Koyama (1965) records the vernacular variant name for this plant, "okinawa-hoshi-kusa", and tells us that the plant differs from *E. sikokianum* Maxim. only in "Receptacle quite glabrous; floral bracts and calyces also not bearded; otherwise almost as in the typical variety".

**ERIOCAULON LUZULAEFOLIUM** Mart.

Additional bibliography: Santapau, Excerpt. Bot. All: 176. 1967; Moldenke, Phytologia 20: 14. 1970.

**ERIOCAULON MACROBOLAX** Mart.

Additional & emended bibliography: Körn., Linnaea 27: 599. 1856; Körn. in Mart., Fl. Bras. 3 (1): 484-485, 502, & 507, pl. 62, fig. 3. 1863; Moldenke, Phytologia 19: 76-77. 1969.

## ERIOCAULON MAGNIFICUM Ruhl.

Additional bibliography: Moldenke, Biol. Abstr. 50: 12948. 1969; Moldenke, Phytologia 19: 77. 1969.

The Ule collection cited below was originally identified by Ruhland as C. ulaei Ruhl.

Additional citations: BRAZIL: Santa Catarina: Ule 1689 (Hg-isotype).

## ERIOCAULON MAGNIFICUM var. GOYAZENSE Moldenke

Additional bibliography: Moldenke, Biol. Abstr. 50: 12948. 1969; Moldenke, Phytologia 19: 343. 1970.

## ERIOCAULON MAGNUM Abbiatti

Additional bibliography: Moldenke, Phytologia 2: 374, 375, & 377 (1947) and 19: 77. 1969.

## ERIOCAULON MALAISSEI Moldenke

Additional bibliography: Moldenke, Phytologia 19: 324 & 343—346, pl. 1. 1970; Anon., Biol. Abstr. 51 (16): B.A.S.I.C. S.74. 1970.

Illustrations: Moldenke, Phytologia 19: 344, pl. 1. 1970.

## ERIOCAULON MALAISSEI f. VIVIPARUM Moldenke

Bibliography: Moldenke, Phytologia 19: 16 (1969) and 19: 345—346. 1970; Anon., Biol. Abstr. 51 (16): B.A.S.I.C. S.74. 1970.

## ERIOCAULON MATOPENSE Rendle

Additional bibliography: Moldenke, Phytologia 3: 143 (1949), 18: 256 & 279 (1969), and 19: 459. 1970.

## ERIOCAULON MELANOCEPHALUM Kunth

Emended synonymy: Lasiolepis aquatica Böck., Flora 56: 91—92. 1873.

Additional & emended bibliography: Böck., Flora 56: 91—92. 1873; Beauverd, Bull. Herb. Boiss., sér. 2, 8: 284—287, fig. 9 B 28. 1908; H. Hess, Bericht. Schweiz. Bot. Ges. 67: 87—89. 1957; Stauffler, Excerpt. Bot. A.2: 84. 1960; Tomlinson in C. R. Metcalfe, Anat. Monocot. 3: 166, 180, 181, 184, 186, 187, & 191, fig. 38 K. 1969; Dandy, Watsonia 7: 168. 1969; Moldenke, Phytologia 20: 14. 1970.

Additional illustrations: Beauverd, Bull. Herb. Boiss., sér. 2, 8: 285, fig. 9 B 28. 1908; Tomlinson in C. R. Metcalfe, Anat. Monocot. 3: 180, fig. 38 K. 1969.

Meikle believes that E. melanocephalum should be reduced to synonymy under E. setaceum L. — thus differing from Hess who maintains it as the proper name for what is usually called E. bifistulosum Van Heurck & Muell.-Arg.

Hunt & Ramos describe E. melanocephalum as an "aquatic herb rooted in mud in slow-moving or still water of pond, flower-heads black, but 6 filaments white", flowering and fruiting in June.. Meikle identified their collection as E. setaceum L. Philcox &

Freeman call the plant a "floating aquatic; heads blue-black", and found it flowering and fruiting in March.

Additional citations: BRAZIL: Mato Grosso: Hunt & Ramos 5909 (N); Philcox & Freeman 4639 (N).

**ERIOCAULON MELANOCEPHALUM** var. **LONGIPES** Griseb.

Additional & emended bibliography: Moldenke, Phytologia 1: 319, 351, & 363 (1939) and 18: 301. 1969; Tomlinson in C. R. Metcalf, Anat. Monocot. 3: 191. 1969.

**ERIOCAULON MELANOCEPHALUM** ssp. **USTERIANUM** Beauverd

Additional & emended bibliography: Beauverd, Bull. Herb. Boiss., sér. 2, 8: 284--287, fig. 9 B 15--27. 1908; Moldenke, Phytologia 19: 78. 1969.

Emended illustrations: Beauverd, Bull. Herb. Boiss., sér. 2, 8: 285, fig. 9 B 15--27. 1908.

**ERIOCAULON MERRILLII** Ruhl.

Additional bibliography: K. U. Kramer, Excerpt. Bot. A.6: 33. 1963; Moldenke, Phytologia 19: 346, 420, 477, & 478 (1970) and 20: 31. 1970.

A vernacular name recorded for this plant in Sumatra is "silandit tano".

Additional citations: GREATER SUNDA ISLANDS: Sumatra: Boeea 10343 (N).

**ERIOCAULON MESANTHEMOIDES** Ruhl.

Additional bibliography: Moldenke, Phytologia 2: 375 (1947), 19: 346 & 487 (1970), and 20: 284. 1970.

**ERIOCAULON MEXICANUM** Moldenke

Additional & emended bibliography: Moldenke, Phytologia 1: 319--320, 350, & 360. 1939; Hocking, Excerpt. Bot. A.13: 510. 1968; Moldenke, Phytologia 19: 347. 1970.

**ERIOCAULON MICROCEPHALUM** H.B.K.

Additional bibliography: J. F. Macbr., Field Mus. Publ. Bot. 13 (363): 489--490. 1936; Moldenke, Phytologia 20: 14, 424, & 425. 1970.

Sparre found this plant growing in marshland in the transition zone to quebrada vegetation. Iltis & Urgent found it in wet springy areas with huge hard cushions of Distichia muscoides, Scirpus, and Gentiana, at 4250 meters altitude.

Macbride (1936) cites F. W. Pennell 13864, Raimondi s.n., and Weberbauer 2269 from Peru.

Additional citations: MEXICO: México: Pringle 13228 (Mi). ECUADOR: Carchi: Sparre 14260 (S). PERU: Cuzco: Iltis & Urgent 1257 (W-2542293).

**ERIOCAULON MIKAWANUM** Satake & Koyama

Additional synonymy: Eriocaulon sikokianum var. mikawanum (Sa-

take & Koyama) Koyama in Ohwi, Fl. Jap. 269. 1965.

Additional bibliography: Koyama in Ohwi, Fl. Jap. 269. 1965; Moldenke, Phytologia 18: 307-308. 1969.

Koyama (1965) records the vernacular variant Japanese name "mikawa-inu-no-hige" for this plant and affirms that the plant is known only from Tsukude Moor in Mikawa Province on Honshu Island.

#### ERIOCAULON MINUSCULUM Moldenke

Additional bibliography: Moldenke, Phytologia 18: 309. 1969; G. Taylor, Ind. Kew. Suppl. 14: 54. 1970.

#### ERIOCAULON MINUTISSIMUM Ruhl.

Additional & emended bibliography: Moldenke, Phytologia 1: 320, 351, & 355. 1939; Moldenke, Alph. List Cit. 1: 187. 1946; Moldenke, Phytologia 18: 309. 1969.

#### ERIOCAULON MIQUELIANUM Körn.

Additional synonymy: Eriocaulon miquelianum var. miquelianum Koyama in Ohwi, Fl. Jap. 269. 1965.

Additional bibliography: Moldenke, Phytologia 2: 494 (1948) and 3: 144. 1949; Koyama in Ohwi, Fl. Jap. 266, 268, & 269. 1965; Tomlinson in C. R. Metcalfe, Anat. Monocot. 3: 171 & 173. 1969; Moldenke, Phytologia 19: 347, 348, 416, 454, & 456 (1970) and 20: 411. 1970.

Koyama (1965) records the vernacular variant "inu-no-hige" for this species.

#### ERIOCAULON MIQUELIANUM var. ATROSEPALUM Satake

Additional bibliography: Moldenke, Phytologia 3: 144. 1949; Koyama in Ohwi, Fl. Jap. 269. 1965; Moldenke, Phytologia 13: 311. 1969.

Koyama (1965) records the vernacular variant name for this plant, "takayo-inu-no-hige", states that the taxon differs from typical E. miquelianum only in having the "heads few-flowered, receptacle pilose, and pistillate calyxes blackish", and that it occurs only in Uzen Province on Honshu Island.

#### ERIOCAULON MISERRIMUM Ruhl.

Additional & emended bibliography: Moldenke, Phytologia 1: 320, 351, & 355. 1939; Moldenke, Alph. List Cit. 1: 92 & 186. 1949; Moldenke, Phytologia 18: 312. 1969.

#### ERIOCAULON MISERUM Körn.

Additional & emended bibliography: Körn., Linnaea 27: 579, 584, & 607-608. 1856; Körn. in Mart., Fl. Bras. 3 (1): 293 & 503. 1863; Santapau, Excerpt. Bot. All: 176. 1967; Moldenke, Phytologia 19: 347. 1970.

#### ERIOCAULON MISSIONUM Castell.

Additional bibliography: Moldenke, Phytologia 2: 375 & 378 (1947) and 18: 313. 1969.

To be continued